Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 56 February, 1954 No. 662

NOTES ON NORTH TEXAS GRASSES

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These notes have accumulated in the course of work on a *Flora of North Central Texas*, now nearly completed. Since many of them concern plants of the "Manual range," their presentation in Rhodora may be justified. The area of primary concern is 34 counties (out of 254 in the state) surrounding Dallas and Fort Worth. Their combined area, 27,552 square miles, is about a tenth that of Texas, and about ¾ that of Indiana; it is larger than any of the nine smallest eastern states. Loblolly and shortleaf pine enter the eastern counties; *Echinocereus Reichenbachii* and *Ephedra antisyphilitica* the westernmost. Within the city of Dallas, Canada moonseed (*Menispermum canadense*) and Mexican buckeye (*Ungnadia speciosa*) reach their southwestern and northeastern limits respectively. Endemics are numerous, some common and weedy, like *Cirsium terrae-nigrae;* some fairly common in a few places, like *Dalea Hallii, Silphium albiflorum*, or *Mirabilis dumetorum;* at least two probably extinct—*Dalea Reverchonii* and *Vernonia vulturina.* As might be expected, the grass flora is a rich one, with 229 recognized species. Indiana, with an area a third larger, is credited by Deam with 211. It is worth mentioning that little more than 3% of the local flora is introduced, counting even casual waifs. On the same basis, the percentage of aliens in the northeastern states would be ten times as great.

All specimens cited or mentioned as having been seen are in the Herbarium of Southern Methodist University, unless otherwise stated. I am grateful to Jason R. Swallen, Head Curator, U. S. National Herbarium, for the loan of selected specimens,

and for information regarding certain others; to Dr. Robert E. Woodson, Jr., Curator of the Herbarium, and Dr. G. B. Van Schaack, Honorary Curator of Grasses, for many courtesies on several visits to the Missouri Botanical Garden; to Dr. B. C. Tharp, Director of the Herbarium, for many courtesies on visits to the University of Texas; to Dr. F. W. Gould, Curator of the Tracy Herbarium, Texas A. & M. College, for permission to publish a manuscript name, and for observations on several species; and to Miss Marjorie W. Stone, Librarian and Bibliographer of the Gray Herbarium, for copies of the original descriptions of *Agrostis clandestina* and *Vilfa Drummondii*.

Bromus commutatus Schrad. Reported by Silveus from Palestine, Anderson County; the collection (*Tharp s.n.*, June 7, 1920; US) is *B. japonicus* Thunb. var. *porrectus* Hackel. Another collection, from Hillsboro, Hill County (*Harvey 834*, June 12, 1939; US), is *B. secalinus* L. So far as known, *Bromus commutatus* does not occur in Texas.

Eragrostis cilianensis (All.) Hitchcock, Contrib. U. S. Nat. Herb. **21:** 86, 1919 (*nomen nudum*); ibid. **25:** 84, 1925. Incorrectly attributed to Link (ex Lutati); later (*Man. Grasses* ed. 2) incorrectly attributed to Lutati. Fernald (*Manuel* ed. 8) retains the universally accepted name (outside the U. S.) *E. megastachya* (Koel.) Link, remarking "*E. cilianensis* sensu Vignolo-Lutati, apparently not *Poa cilianensis* All." Lutati (1904), in eight pages of inflated discussion, states essentially that nearly all authors who have investigated the matter consider *Poa cilianensis* a stunted form of *Eragrostis megastachya*, and that a probable type specimen does belong to the latter species. Certainly the plate in Allioni's *Flora Pedemontana* can be referred to it with little question—not typical, but a quite common form with few-flowered spikelets. I see no reason to dispute Lutati's conclusion that the two are the same. Unhappily, instead of settling the nomenclature in simple and logical fashion, Lutati left it more snarled than it was. At the end of his article he points out (again) that the name *cilianensis* is older, and goes on to say (as I interpret his Italian) ". . . strictly, it appears necessary to make a substitution, and to write consequently *Eragrostis Cilianensis* (All.) Lk. However, as Ascherson and Graebner have rightly observed, we cannot decide to accept [literally, prefer] the name of *Cilianensis*, although older, because it represents an atypical form. Besides, I should believe it more convenient, in order to avoid future confusion [sic!], that such a denomination, conserved, if desired, in indexes of synonyms, need not appear in our flora as a synonym of *E. megastachya;* however, to the description of this, I add some small corrections relating in particular to the characters of its not-well-developed panicles. *Obs. in Eragrostidem megastachyam* Lk.: . . ." To sum up, Lutati (and the numerous earlier and contemporary botanists whom he cites) correctly identified *Poa cilianensis* All. with

Eragrostis megastachya, but did not accept the necessary new combination, which therefore was not validly published until accepted by Hitchcock, incorrectly attributed to Link or Lutati. In the second edition of Fiori's *Flora Analitica d'Italia*, the name *E. megastachya* is still retained, with "E. cilian. Vignolo-Lutati" given as a synonym under var. *major*. Hegi's *Illustrierte Flora von Mittel-Europa* likewise lists *E. cilianensis* in synonymy. It is possible that some other author than Hitchcock accepted the latter name as valid and published it with proper basonym before 1925. But regardless of who the second author may be, the required combination is *Eragrostis cilianensis*.

ERAGROSTIS POAEOIDES (L.) Beauv. The only Texas record of this species is a collection made by Gustav Jermy, without date or locality, labeled as from Texas (US). Jermy was a Hungarian who collected both plants and animals chiefly in Bexar and Gillespie counties prior to 1900. His herbarium (now at the Missouri Botanical Garden) included much European material. It is entirely possible that the supposed Texas collection was actually a European one mislabeled. The early date and the lack of any other record are grounds for suspicion.

ERAGROSTIS PECTINACEA (Michx.) Nees. Including *E. diffusa* Buckley. The key differences given in Hitchcock's Manual are quite elusive and inconstant, and the weak morphological differences are not helped by the alleged geographic separation: "chiefly east of the 100th meridian" for *E. pectinacea*. The type locality of *E. diffusa*, "Northern Texas," was somewhere between Mason and Young counties; both are east of the 100th meridian, not west of it.

ERAGROSTIS TRICHODES (Nutt.) Nash. Under this name I am provisionally leaving some of the most puzzling grasses in our flora, including those referred to *E. pilifera* Scheele. In addition to the two extremes and intergrades, there are specimens with spikelets reduced to a single floret (*Muller 8615*, Hall County; *Muller 8750*, Palo Pinto County; also *K. C. Bennett 126* from Rogers County, Oklahoma). These were at first filed under *Sporobolus*, as a possibly undescribed species, until in the course of periodic reëxaminations spikelets were found with two and finally three florets. Comparison with normal specimens of *Eragrostis trichodes* failed to reveal any convincing differences other than the reduced number of florets.

TRIDENS FLAVUS (L.) Hitchcock, var. **Chapmanii** (Small) Shinners, comb. nov. *Sieglingia Chapmanii* Small, Bull. Torr. Bot. Club **22:** 365. 1895. (Originally spelled *Chapmani*. I follow Recommendation 82C (b) of the International Code in doubling the *i*. It is to be observed that this recommendation provides neither a royal road to learning nor a safe short-cut around it for those ignorant of Latin. Names which have a Latin form must adhere to it; hence *Andropogon Gerardi* cannot be altered to *Gerardii*, since there is the Latin form *Gerardus* for Gerard. But this is late Latin, not ancient, and the rules do not say when or by whom a Latin form is legitimately coined.) Here may be inserted a Florida endemic: *T. flavus* var. **aristatus** (Scribn. & Ball) Shinners, comb. nov.,

based on *Triodia seslerioides* var. *aristata* Scribn. & Ball, U. S. D. A. Div. Agrost. Bull. **24:** 45, 1901 (Jan. 9; bottom of title page dated 1900). Both Fernald and Gleason retained *Triodia* for the American species. Reasons for adopting *Tridens* instead are very briefly noted in the appendix of ed. 2 of Hitchcock's *Manual* (p. 997). More extended explanations have been given by C. E. Hubbard (1937) and Burbidge (1946), who consider the Australian arid-land *Triodia* amply distinct morphologically from *Tridens*.

Tridens muticus (Torr.) Nash, var. **elongatus** (Buckley) Shinners, comb. nov. *Uralepis elongata* Buckley, Proc. Acad. Nat. Sci. Phila. **14:** 89. 1862. *Triodia elongata* (Buckley) Scribner. *Tridens elongatus* (Buckley) Nash. Var. *muticus* is common in Trans-Pecos Texas, extending eastward very rarely to Denton County in north central Texas. Var. *elongatus* is rather common in central and northern Texas, occasional in the Trans-Pecos. The two are sometimes very difficult to distinguish.

Agropyron repens (L.) Beauv. Reported by Silveus from Gainesville, Cooke County. The specimen in the University of Texas Herbarium is *A. Smithii* Rydb., or *Elymus Smithii* (Rydb.) Gould.

Elymus **trachycaulus** (Link) Gould, ined. *Triticum trachycaulum* Link, Enum. Pl. Hort. Reg. Berol. Altera **2:** 189. 1833. *Elymus pauciflorus* (Schweinitz) Gould, 1947; not Lamarck, 1791. Known in Texas from the Panhandle. The orthography follows that of Link, using second declension endings instead of the more usual third declension form—*caulis*.

Elymus canadensis L., var. **villosus** (Muhl.) Shinners, comb. nov. *E. villosus* Muhl. ex Willd., Enum. Pl. Hort. Reg. Berol. **1:** 131. 1809. As I knew the plants in the Middle West, *E. villosus* and *E. canadensis* were quite distinct. In Texas it is another story altogether. In the local flora, some forms of var. *brachystachys* (Scribn. & Ball) Farwell are almost impossible to distinguish from var. *villosus*. Similar situations were encountered in *Sporobolus* (see below), *Carex*, *Juncus*, and other genera, in which species quite distinct farther east or north run hopelessly into each other when they occur in Texas.

Danthonia sericea Nutt. Not recorded from Texas in Hitchcock's *Manual*, but entering the northeastern corner of the state. Bowie Co.: 1 mile west of Corley, *V. L. Cory 55951*, May 11, 1949.

Agrostis Elliottiana Schultes f. **molesta** Shinners, f. nov. Lemmatibus exaristatis. type: sandy upland pine woods 2.7 miles east of Mineola, Wood Co., Texas, *Shinners 14372*, April 23, 1953. The species ordinarily is very distinct and easily recognized by the very long, delicate awns of the lemmas; an awnless form may well be called troublesome. Only the type collection has been seen.

Sporobolus vaginiflorus (Torr.) Wood, var. vaginiflorus. This is the most common and widespread race in Texas, in a wide zone down the central part of the state, from Franklin and Montgomery counties on the east to Montague and Kerr counties on the west.

SPOROBOLUS VAGINIFLORUS, var. INAEQUALIS Fernald. Said by Fernald to extend southwestward to Missouri, Nebraska, and Arizona; found also, rather surprisingly, in the Pine Belt of northeastern Texas. CAMP CO.: 4.4 miles north of Pittsburg, *Shinners 16117*, Sept. 16, 1953. GREGG CO.: 5.5 miles north of Longview, *Shinners 16029*, Sept. 16, 1953.

SPOROBOLUS VAGINIFLORUS, var. **neglectus** (Nash) Shinners, comb. nov. *S. neglectus* Nash, Bull. Torr. Bot. Club **22:** 464. 1895. Reported from Texas on the basis of specimens collected at Austin, Travis County (*R. H. Painter 58* and *69*, Nov. 22, 1922; US). These have pubescent lemmas, though the spikelets are only 2–2.6 mm. long. I consider them late-season atypical individuals of var. *vaginiflorus*. But authentic *neglectus*, with glabrous lemmas and small spikelets, can still be credited to Texas. ARCHER CO.: 1.5 miles south of Windthorst, roadside, one plant, *Shinners 16402*, September 27, 1953 (SMU, US).

To complete the roster, one extra-limital variety may be added: *S. vaginiflorus* var. **ozarkanus** (Fernald) Shinners, comb. nov. *S. ozarkanus* Fernald, RHODORA **35:** 109. 1933.

SPOROBOLUS ASPER (Michx.) Kunth. Fernald recognizes four species and one named variety in the complex group of this species; Hitchcock accepts two species (plus a third not found in the area covered by Fernald) and two named varieties. In northern Texas, where all but one of the various entities are found (that one not accepted by Hitchcock even as a variety), there is so much intergradation, overlap, and parallel variation that I regard them all as belonging to a single species with four varieties, distinguished very imperfectly as follows:

1a. Plant with horizontal creeping rhizomes; stems not in dense clumps ..... var. *macer*.
1b. Plant without rhizomes; stems solitary or in dense clumps
  2a. Uppermost leaf with blade 0.7–6 cm. long, sheath 5–12 cm. long; inflorescence 3–6 mm. thick
    3a. Lemmas glabrous; spikelets 3–5 mm. long ..... var. *Hookeri*.
    3b. Lemmas pubescent, at least toward base; spikelets 3.8–6 mm. long ..... var. *canovirens*.
  2b. Uppermost leaf with blade (1.7–)5.5–23 cm. long, sheath 8–22 cm. long; inflorescence 5–18 mm. thick; spikelets 4.5–6.1 mm. long, with glabrous lemmas ..... var. *asper*.

SPOROBOLUS ASPER var. ASPER. Occasional through northeastern Texas, in such diverse habitats as open pine woods and roadsides in prairie areas, mainly in lower or richer ground than var. *Hookeri*.

SPOROBOLUS ASPER, var. **macer** (Trin.) Shinners, comb. nov. *Vilfa macra* Trinius, Mem. Acad. Sci. St. Petersb. VI. Sci. Nat. **4** (1): 79. 1840. *S. macer* (Trin.) Hitchcock. In the field, this is the only easily recognized variety. Rather rare, and limited to the Pine Belt. GREGG CO.: 5.5 miles north of Longview, *Shinners 16234*, Sept. 18, 1953. RED RIVER CO.: Clarksville, *C. L. York*, Sept. 14, 1941.

SPOROBOLUS ASPER, var. HOOKERI (Trin.) Vasey. Including var. *pilosus* (Vasey) Hitchcock. Common, chiefly on dry uplands in the prairie areas, rarely eastward in the Pine Belt.

Sporobolus asper, var. **canovirens** (Nash) Shinners, comb. nov. *S. canovirens* Nash ex Britton, Man. p. 1042. 1901. Closely resembling var. *Hookeri* in general appearance, and like it often found in dry prairie habitats, but occurring more frequently than in woodland areas, with about the same local geographic distribution as var. *asper*. Here may be inserted an extra-limital variety, not distinguished from this by Hitchcock. *Sporobolus asper* var. **clandestinus** (Biehler) Shinners, comb. nov. *Agrostis clandestina* Biehler, Pl. Nov. Herb. Spreng. Cent. 8. 1807.

Gramineae, Tribe Stipeae Nees. This was very justly reinstated by Elias (1942), in a work that has been generally ignored by systematists, despite a favorable review by Stebbins (1943). Morphological and cytological criteria for distinguishing the Stipeae as a tribe separate from the Agrostideae are discussed at length by Elias. I will merely repeat Dr. Stebbins' recommendation: "Every botanist interested in the grasses should read carefully the first part of this work." Nearly half the discussion deals with the taxonomy of living grasses rather than of fossil ones.

Aristida longespica Poir., var. geniculata (Raf.) Fernald. *A. intermedia* Scribn. & Ball, U. S. D. A. Div. Agrost. Bull. **24:** 44. 1901. The description and illustration given by Scribner and Ball are unmistakable; the somewhat shorter lateral awns and length of glumes are those of the robust race of *A. longespica*, and not of the plant of the upper Mississippi Valley to which the name has been extended. The plant is rather common in central and eastern Texas, as far west as Callahan County. Var. *longespica* is much less common, and is restricted to the Pine Belt in the extreme eastern part of the state. The Midwestern plant incorrectly passing as *A. intermedia* (a name based on a type from the Gulf Coast in Mississippi) may be designated as follows.

Aristida **necopina** Shinners, sp. nov. *A. intermedia* of authors, in large part, not Scribner & Ball. Annua stricta; gluma inferior brevior 5.5–8 mm. longa, superior longior; lemmatis aristae aequales divergentes nullae geniculatae. type: sandy ridges near ponds, May Twp., Lee County, Illinois, *Virginius H. Chase 5302*, Sept. 1, 1935 (SMU). The same species is reported from Indiana by Deam (1940), as *Aristida intermedia*. Additional collections have been seen from Wisconsin. lincoln co.: Twp. Bradley, *Frank C. Seymour 12,449*, Sept. 22, 1950. milwaukee co.: Wauwatosa, *Shinners 44–293*, July 30, 1944. portage co.: Stevens Point, *Seymour 12,136*, Aug. 19, 1950.

Leptochloa uninervia (Presl) Hitchcock. This is apparently rather rare in Texas, where it has been collected in the extreme southern and western counties. It must be included in the flora of the northern part of the state because of a collection made just across the Red River in Oklahoma (from which state the species is not reported in Hitchcock's *Manual*). love co.: east of Marietta, Lake Texoma, *W. F. Harris*, July 10, 1949.

Bouteloua uniflora Vasey. Subsequent to his revision of the genus *Bouteloua*, Griffiths distributed specimens collected by himself in Lampasas County, central Texas, as this species (no date, but not cited in the revi-

sion). The SMU sheet belongs to a not uncommon form of *B. curtipendula* with few florets in each spikelet. *B. uniflora* itself is apparently restricted to Trans-Pecos Texas. In addition to 1-flowered spikelets, it differs from *B. curtipendula* in the more prominent ligule, with a fringe of hairs longer than the scaly base; in *B. curtipendula* the ligule is very short and largely scaly. I have seen only the following specimen of *B. uniflora*. JEFF DAVIS CO.: about 2 miles south of Kent, *Barton H. Warnock 9258*, Aug. 13, 1950.

BOUTELOUA GRACILIS (Willd. ex H.B.K.) Lag. ex Griffiths, Contrib. U. S. Nat. Herb. **14:** 375. 1912. The authorship of the combination is usually given as Lag. ex Steud., Nom. Bot. (ed. 2) **1:** 219, 1840. But Steudel listed all the names under *Bouteloua* in italics, indicating that they were synonyms; for *B. gracilis* there is a cross-reference to *Chondrosium gracile*, which appears on p. 305 in Roman type with three other names under it as synonyms (*gracilis* is omitted, though *hirsuta* appears under *C. hirtum*). In H.B.K., Nov. Gen. **1:** 176, 1816, the species is published as *Chondrosium gracile*, with *Actinochloa gracilis* "Willd. herb." given as synonym. Article 46 of the International Code states that "a name of a taxon is not validly published when it is merely cited as a synonym." I believe that the second paragraph of examples goes beyond the strict letter of this rule in indicating that when a name published in synonymy is transferred, the name of the originating author is discarded in favor of the publishing author; in other words, the epithet is to be credited to someone who did not coin it. In the case of the present species, only H.B.K. should be cited in parentheses, if the examples in Article 46 are followed. In similar vein, Article 58 decrees that names published by one author and credited to another must be cited as from both authors, as author A "ex" author B, but that if the citation is abbreviated, the originating author is omitted and only the publishing one mentioned. I fear that adherence to this rule will necessitate a good many annoying and needless changes—for example, the numerous species of Nuttall published by Torrey and Gray, which in transfers would no longer be credited to Nuttall. If the tendency shown in these articles is carried only a little further, we should adopt the zoological custom of citing only one author in all cases. If continued to its logical conclusion, we should discard authors' names altogether—perhaps the best solution. If, on the other hand, author citations are retained because it is useful to have some indication about the origins of names, then the two articles (or more precisely, the examples given under Article 46) go too far. Names published in synonymy may have no standing for valid species or varieties or in questions of priority, but they exist in print, they are indexed, are often discussed, and have standing of a sort. Legal decrees do not make them "un-names," like the "un-persons" of Orwell's novel, "*1984*." It seems to me more accurate to write *Bouteloua gracilis* (Willd.) Lag., rather than (H.B.K.) Griffiths; just as it would seem quite out of order to write only "T. & G." after names proposed by Nuttall.

PASPALUM DISTICHUM L., var. **indutum** Shinners, var. nov. Foliorum vaginae hirsutae. TYPE: Turtle Creek at Stonebridge Drive, Dallas,

Shinners 10564, Oct. 9, 1948 (SMU). "In gray silty clay and chalk gravel. Culms trailing." Known only from the type.

Paspalum **separatum** Shinners, sp. nov. Subrhizomatosa erecta 44 cm. alta; vaginae inferiores pilosae pilis adscendentibus, superiores puberulae vel glabrae margine pilosae; ligula ca. 0.8 mm. longa; laminae glabrae basi longe ciliatae ad 6–7 mm. latae. Racemi 2 terminales approximati racemosi suberecti, inferior 16 cm. longus superiorem excedens; rachis acutangulata glabra exalata; spiculae sine gluma prima, planoconvexae, ellipticae, obtusae, 2.2 mm. longae, 1.5 mm. latae, puberulae, subappressae, pedicellis ca. 0.3 mm. longis solitariae, remotae (rachios internodi 2.5–7 mm. longi). type: 2.3 miles northwest of Golden, Wood County, *Shinners 15566*, July 27, 1953 (SMU). "In thicket, sandy stream bank." Known only from the type, which unfortunately is not fully mature, the base of the inflorescence being still included in the uppermost leaf sheath. The solitary, remote spikelets make it look as if it were not a *Paspalum* at all. In general appearance, it suggests an erect form of *P. ciliatifolium*.

Paspalum ciliatifolium Michx. At first it appeared that Fernald's treatment of the varieties of this species would fit the Texas plants, but intensive collecting during 1953 led to the conviction that it could not be followed. Final blow was the discovery that the SMU sheet of *Plantae Exsiccatae Grayanae 1322*, from New York, distributed as var. *Muhlenbergii*, had sparse but distinct minute pubescence (under strong magnification) as well as long hairs—a feature supposedly restricted to the Midwestern and Southwestern var. *stramineum*. Nor could I recognize *P. Bushii* Nash, retained by Fernald, though treated as a synonym of *P. stramineum* by Chase. Only one race seems distinctive—a dark-pigmented form with stems always erect and with densely long-hairy sheaths and blades (presumably *P. pubescens* Muhl.), found only in the Pine Belt. Otherwise it is impossible to separate the Texas plants even into weak varieties. As here interpreted, *P. ciliatifolium* is our most widespread and abundant native species (the introduced *P. dilatatum* Poir. and *P. Urvillei* Steud. are more plentiful), varying from prostrate to erect and from glabrous to densely pubescent with one or two lengths of hairs, flowering from spring to fall.

Panicum. With 41 species, this is the second largest genus in the local flora, only 3 species smaller than *Carex*, the largest. Subgenus Dichanthelium proved unexpectedly simple, though it contained 22 of the 41 species. One puzzle has been left unsolved: the proper identity of *P. villosissimum* Nash. Plants so named by Hitchcock & Chase and others from as far east as Georgia have an extremely short ligule (0.2–1.2 mm. long), largely obscured by much longer hairs on the base of the blade. According to Nash (Bull. Torr. Bot. Club **23:** 149, 1896), the ligule is "a ring of long hairs"; according to Hitchcock, it is 4 to 5 mm. long. Until further study can be made of the eastern members of the group (the type of *P. villosissimum* was from Macon, Georgia), I am referring to Nash's species a plant in the local flora which largely fits the description except for the very short ligule obscured by long hairs on the blade.

PANICUM CAPILLARE L. As previously in Wisconsin (1944), I am not able to distinguish var. *occidentale* Rydb. From Dallas westward occur plants which are rather robust, gray-green, with an inflorescence usually only ¼ to ½ their total height, greatly resembling *P. capillare*, var. *hirticaule* (Presl) Gould (*P. hirticaute* Presl). It is often (but not always) possible to find the lunate scar at the base of the fertile lemma, the principal diagnostic feature of *P. Hillmanii* Chase. Commonly they key to *P. philadelphicum* Bernh., though outside the range of that species, and much coarser throughout. The whole *capillare* complex is a very difficult one in the Southwest, and for the present I refer all local material identified as any of the species listed to *P. capillare*.

PANICUM PILCOMAYENSE Hackel. First collected at Collegeport, Matagorda County, on the Texas coast, in 1929; reported in Hitchcock's *Manual* (ed. 2) only from the one locality. Becoming established farther north and east; it has been collected in Brazos, Chambers, and Navarro counties—the last locality (6 miles south of Richland, *Cory 51549*) in north central Texas. The plant resembles a very diffuse form of the common *P. virgatum*, and may be overlooked on that account.

ECHINOCHLOA CRUSGALLI (L.) Beauv. Represented in Texas by at least four varieties, which fall into two groups. The groups may be designated *E. Crusgalli*, ssp. **muricata** (Michx.) Shinners, comb. nov., based on *Panicum muricatum* Michx., Fl. Bor.-Am. **1:** 47, 1803 (if the hyper-refined and unfortunate homonym rule is strictly adhered to, the basonym must be designated as *Oplismenus muricatus* Kunth, Rev. Gram. **1:** 44, 1829, the first legitimate publication of the epithet. There having been an earlier *Panicum muricatum*, Michaux's species was illegitimately named, even though validly described); and *E. Crusgalli* ssp. **zelayensis** (H.B.K.) Shinners, comb. nov., based on *Oplismenus zelayensis* H.B K., Nov. Gen. **1:** 108, 1815. The varieties in northern Texas may be distinguished as follows. The first pair of leads in the key sets off the two subspecies in the order just named; the varieties are listed thereafter in abbreviated form.[1]

Inflorescence with long ascending to widely spreading or deflexed hairs at summit of internodes or base of branches, their bases conspicuously swollen; spikelets with spiny hairs from swollen bases, at least on margins; panicle branches at maturity ascending to widely spreading
Body of sterile lemma 3.3–4 mm. long; spikelets 1.6–2.3 mm. wide; upper glume usually distinctly awned . . . . . var. *muricata*.

[1] Because new varietal combinations are made, it would be better to give formally complete citations, naming the subspecies in every case. I have deliberately taken advantage of the permission granted by Article 34 of the Code, "to reduce more complicated names to ternary combinations," in order to call attention to and illustrate that article, to point out that shifting varieties from one subspecies to another does not involve new author citations so long as they remain within the same species, and to emphasize the utilization of the subspecific category as a comparatively minor and incidental one, for a group of geographic varieties. If full citations were given, var. *zelayensis* would be given without author when under ssp. *zelayensis*, but it is not stated in the Code that this still holds when the subspecies is omitted.

Body of sterile lemma 2.5–3.3 mm. long; spikelets 1.2–1.8 mm. wide; upper glume acuminate or rarely awned . . . . . var. *microstachya*.
Inflorescence with very short hairs only, or with long ascending hairs at summit of internodes or base of branches, their bases not swollen; spikelets with fine pubescence, the hairs mostly slender, without swollen bases; panicle branches ascending to erect or loosely appressed
Spikelets 3.6–4.1 mm. long . . . . . var. *zelayensis*.
Spikelets 2.6–3.3 mm. long . . . . . var. *macera*.

Echinochloa crusgalli, var. muricata (Michx.) Farwell. Doubtless one of the several names in varietal rank published by Pursh (Fl. Am. Sept. **1:** 66, 1814; vars. *aristatum*, *mite*, *purpureum*) has priority, but their identity cannot be determined from the brief descriptions. I include *E. muricata* var. *ludoviciana* Wiegand, or *E. pungens* var. *ludoviciana* (Wieg.) Fernald & Griscom. Chiefly eastern, found as far west as Collin and Dallas counties. I have already indicated disapproval of the strange antics one must go through if one adheres strictly to requirements regarding legitimacy of epithets and authorship. Deleting Michaux's name and substituting Kunth's in the author citation of this variety would be of no benefit, and would only contribute confusion and irritation.

Echinochloa crusgalli, var. **microstachya** (Wiegand) Shinners, comb. nov. *E. muricata* var. *microstachya* Wiegand, Rhodora **23:** 58–59. 1921. *E. pungens* var. *microstachya* (Wieg.) Fernald & Griscom. The commonest and most widespread variety in Texas, known from all sections except the lower Rio Grande Plain.

Echinochloa crusgalli, var. zelayensis (H.B.K.) Hitchcock. *E. zelayensis* (H.B.K.) Schultes. Cited by Wiegand from San Elizario (El Paso County) and Big Spring (Howard County). Found in the Red Plains, Panhandle, and Trans-Pecos, considerably west and northwest of the area occupied by var. *macera*. Armstrong co.: ½ mile west of Washburn, *Eula Whitehouse 17248*, Sept. 27, 1946. Hale co.: 6.6 miles south of Kress and west 4.1 miles from Highway 87, *Whitehouse 9943*, June 16, 1945. Jeff Davis co.: Scenic Loop, Davis Mts., *Warnock 9309*, Aug. 26, 1950. Mitchell co.: N.E. ¼ Sec. 1, T. & P. R.R. Block 27, *R. W. Pohl 4591*, July 29, 1944. Taylor co.: Abilene, *W. L. Tolstead 7735*, Oct. 27, 1943. Wichita co.: 11.3 miles south of Electra, *Whitehouse 10886*, Oct. 13, 1945.

Echinochloa crusgalli, var. **macera** (Wiegand) Shinners, comb. nov. *E. zelayensis* var. *macera* Wiegand, Rhodora **23:** 54. 1921. Type from Matamoros, Tamaulipas, opposite Brownsville, Texas (not examined); cited by Wiegand from "western Texas," *Berlandier* (not Trans-Pecos Texas; old usage of the phrase "West Texas" referred to the region of Austin, San Antonio, and Laredo), and from Waco (McLennan County). Known from a belt running south to north across the middle of the state. Dimmit co.: Asherton, *Tharp*, June 24, 1941. Ellis co.: 2¼ miles northeast of Bardwell, *Cory 53376*, July 10, 1946. Freestone co.: 12.5 miles northwest of Fairfield, *B. L. Turner 1537*, Oct. 2, 1949. Harris co.: Houston, *G. L. Fisher 49058*, June 5, 1949. Rockwall co.: Royse City, *Cory 53318*, June 28, 1946.

CENCHRUS LONGISPINUS (Hackel) Fernald. Occasional in the north central counties. GRAYSON CO.: 3 miles southeast of Denison, *Shinners 16374*, Sept. 26, 1953. MONTAGUE CO.: 3.5 miles east-southeast of Ringgold, *Shinners 15807*, Aug. 29, 1953. PARKER CO.: 1.4 miles southwest of Springtown, *Shinners 16418*, Sept. 28, 1953. VAN ZANDT CO.: 9.7 miles northwest of Wills Point, *Robert Van Vleet 508*, June 11, 1950.

CENCHRUS PAUCIFLORUS Benth. The common species from Clay and Edwards counties westward, i. e., in the western half of the state. Not distinguished from the preceding in Hitchcock's *Manual* nor by Gleason. Actually it is more closely allied to *C. incertus*. I distinguish the three as follows:

Spines rather numerous, 15–25 completely visible on one side of bur, slenderly pointed, usually many of the lowest slender nearly to base; body of bur rather long-pubescent, the hairs nearly as long as those on bases of middle and lower spines (usually markedly shorter than those of upper spines); greatest width of mature bur 10–15 mm., including spines . . *C. longispinus.*

Spines fewer, 9–15 completely visible on one side of bur, mostly broad and stout, few or none of the lowest slender; body of bur rather short-pubescent or glabrate, the hairs when present markedly shorter than those on bases of middle and lower spines (much shorter than those of upper spines); greatest width of mature bur 7–12 mm., including spines

Burs (except lowest) closely crowded, middle internodes of spike 1.5–3 mm. long; annual . . . . . *C. pauciflorus.*

Burs more loosely spaced, middle internodes of spike 2.5–9 mm. long, mostly more than 3 mm.; perennial, but sometimes flowering the first year . . . . . *C. incertus.*

CENCHRUS INCERTUS M. A. Curtis. The commonest species in central and eastern Texas, and in the Rio Grande Plain. In northern Texas it extends as far west as Young County, slightly overlapping the range of *C. pauciflorus.* Apparently a short-lived perennial, sometimes flowering in its first year; tends to form mats, the stems longer, with more nodes and more decumbent than either of the two annual species. *C. Albertsonii* Runyon, Amer. Journ. Bot. 26: 485, 1939, described from Oklahoma, is listed as a synonym of *C. pauciflorus* in Hitchcock's *Manual.* It was distinguished by the describer from *C. pauciflorus* by its perennial habit; the description and figure unmistakably belong to *C. incertus*, not *C. pauciflorus.* *C. incertus* is not credited to Oklahoma in the *Manual*, but it is widespread there. *C. Albertsonii* was cited in the original description from Harper and Woodward counties, northwestern Oklahoma; specimens have been seen from Muskogee County (4 miles southeast of Biggs, *U. T. Waterfall 10085*) and Payne County (1 mile northwest of Ripley, *B. M. Beard 102*), in the eastern part of the state.

ANDROPOGON SCOPARIUS Michx. Two fairly well marked and geographically segregated varieties occur in north central Texas. It is admittedly venturing into dangerous territory to name a new variety of this complex and widespread species. Only a thorough cytotaxonomic

study, such as that made by Gould for the *A. barbinodis-A. saccharoides* complex, can provide an adequate account of the races of little bluestem. The completion of such a study necessarily lies well in the future. Meantime I think it a pardonable sin to provide our local plants with names for reference. Some remarks are added relating to extra-limital varieties which have been misinterpreted. The two local ones are separable as follows:

Pedicelled spikelet 1.5–5 mm. long (excluding awn), consisting of a single empty glume; Blackland Prairies westward . . . . . var. *frequens*.
Pedicelled spikelet 4.5–7 mm. long (excluding awn), many or most pedicelled spikelets in each inflorescence with two glumes and commonly lemma and stamens; Pine Belt, locally westward on sandy river terraces in oak woods to Dallas County . . . . . var. *virilis*.

Andropogon scoparius, var. frequens F. T. Hubbard. Abundant in both clayey and sandy soils; the principal original climax dominant over much of north central and northwestern Texas. Farther west it intergrades with var. *neomexicanus*. Though not definitely known from northeastern Texas, it is found in northwestern Louisiana (3.2 miles east of Greenwood, Caddo Parish, between highway and railroad, *Shinners 15640*, Aug. 16, 1953). A glaucous form is locally very common, especially in the East Cross Timbers (a north-south sandy belt passing between Dallas and Fort Worth, bordered on both sides by calcareous clayey prairie soil). Fernald considers this the same as var. *polycladus* Scribn. & Ball (type from Bradenton, peninsular Florida), and Hubbard cites a collection from Dallas under "var. *polyclados*." If Hubbard is correct in defining var. *polycladus* as a coastal race with compressed sheaths, similar to if not identical with var. *littoralis* (Nash) Hitchcock, the name applies to the race found on the coastal prairies of Texas (specimens seen from Aransas, Harris, Kenedy, Kleberg, and San Patricio counties), but not to the inland plants with sheaths only slightly compressed or keeled. Fernald does not mention this characteristic, and at first (with Griscom) very mistakenly equated var. *polycladus* with var. *divergens* (see below). I follow Hubbard's own broad interpretation of his var. *frequens* (type from Rhode Island), though it is scarcely a homogeneous entity. Its genetic complexity was illustrated some years ago when the Soil Conservation Service attempted to restore little bluestem to an eroding sandy field in Wise County, northwest of Dallas. Seed was obtained from Mandan, North Dakota, and produced a fine row along one edge of the field. But the hope that it would seed in and cover the rest of the field was unfounded. Though supposedly the same as the Texas race, local climatic conditions were apparently unsuitable; the North Dakota immigrants never produced viable seed.

Andropogon scoparius, var. **virilis** Shinners, var. nov. Spicula pedicellata 4.5–7 mm. longa (arista exclusa) saepissime mas cum glumis duobus lemmate staminibusque pedicello brevipiloso (pilis 2 mm. longis) basin versus nudo; foliorum vaginae glabrae vel parce pubescentes. type: 3.3 miles south of New Diana, Upshur County, *Shinners 16009*, Sept. 15, 1953 (SMU; isotype US). "Sandy pine woods. Culms soli-

tary." Southwestern pine-land parallel of var. *septentrionalis* Fernald & Griscom, with shorter and less extensive pubescence on the pedicels; differing from var. *scoparius* in the sparsely pubescent or glabrous sheaths. Possibly identical with *A. praematurus* Fernald, RHODORA **42:** 413, 1940, characterized by early flowering and well-developed pedicelled spikelets; our plants are not early flowering. This entirely replaces var. *frequens* in the Pine Belt of northeastern Texas, extending rarely as far west as Dallas County on sandy river terraces; found also in Arkansas and Oklahoma. The following specimens have been examined.

ARKANSAS. FULTON CO.: Hardy, *Etlar L. Nielsen 4449*, Oct. 4, 1936. OKLAHOMA. PAYNE CO.: northwest of Stillwater, *A. H. Broadhead 94*, Aug. 26, 1948. PONTOTOC CO.: about 2 miles east of Ada, *G. Thomas Robbins 2259*, Sept. 28, 1946. TEXAS. DALLAS CO.: southeast of Seagoville, *C. L. Lundell 12072*, Sept. 22, 1942. FRANKLIN CO.: 12.5 miles south of Mt. Vernon, *Shinners 16300*, Sept. 18, 1953. FREESTONE CO.: 14.5 miles south of Fairfield, *B. L. Turner 1543*, Oct. 2, 1949; same place and date, *Turner 1558*. HUNT CO.: 8 miles east of Greenville, *Turner 1383*, Sept. 11, 1949. SMITH CO.: western edge of Tyler, *Cory 56835*, Aug. 17, 1949. WOOD CO.: 3.8 miles south of Quitman, *Turner 1421*, Sept. 11, 1949.

ANDROPOGON SCOPARIUS, var. DIVERGENS (Anderss.) Hackel. (Basonym published in synonymy by Hackel.) In their account of the varieties of *Andropogon scoparius*, Fernald and Griscom (RHODORA **37:** 143–144, 1935) separate this from their var. *genuinus* by glabrous or pubescent sheaths (vs. pilose sheaths in *genuinus*), give var. *polycladus* Scribn. & Ball as a synonym, and observe "this . . . has had an unfortunate career, being either completely ignored or quite misinterpreted." They were correct in their last statement, and were parties to the crime. (Subsequently Fernald substituted var. *polycladus*, which was not much better; *Gray's Manual*, ed. 8.) The original description of *divergens* (DC. Mon. Phan. **6:** 385, 1889) begins "vaginis (praesertim inferioribus) paginaque laminarum inferiore appresse sericeo-pilosis; spathis propriis appresse pilosis; spiculis sessilibus 7 mm. longis." The type was from Texas, without indication of date or collector, and was in the Berlin Herbarium; presumably now lost. The following specimens from extreme southeastern Texas fit the description, and indicate that var. *divergens* is a restricted endemic of the Texas coastal area. HARRIS CO.: Houston, *Fisher 51051*, Oct. 17, 1951. JEFFERSON CO.: 9 miles west of Beaumont, *Cory 50026*, Oct. 4, 1945. TYLER CO.: 17 miles south of Woodville, *Cory 49969*, Oct. 2, 1945.

ANDROPOGON SCOPARIUS, var. NEOMEXICANUS (Nash) Hitchcock. Panhandle and Trans-Pecos Texas, locally as far east as Fisher and Hardeman counties, west central Texas; intergrading with var. *frequens*. At maturity the pedicelled spikelets are only slightly spreading if at all, unlike the prominently out-curved ones of the more eastern varieties; the whole plant is pale or glaucous.

ANDROPOGON ISCHAEMUM L. King Ranch or KR bluestem, first planted chiefly in the southern part of the state, is becoming established as a weed as well as planted in the northern counties. COLLIN CO.: 3

miles west of Plano, *Shinners 12921*, Oct. 28, 1950. "Weed at edge of field" (of vegetables). DENTON CO.: Texas Substation No. 6, 4¾ miles west-northwest of Denton, *Cory 53708*, May 18, 1947. "Persisting in grass plots of the Experiment Station." GRAYSON CO.: Sherman, *Cory 59126*, Oct. 16, 1951. "Infrequent between sidewalk and curb, south side of square." ROCKWALL CO.: 1.8 miles southwest of Rockwall, *Shinners 16318*, Sept. 25, 1953. "Shallow road-cut on Super-highway 67, evidently planted."

SORGHASTRUM SECUNDUM (Ell.) Nash. Credited to Texas on the basis of specimens collected at Dallas by Reverchon. The plants (SMU, US) are immature and atypical samples of *S. Elliottii* (Mohr) Nash, which is not uncommon in eastern Texas, chiefly in the Pine Belt. *S. secundum* is not known farther west than Mississippi.—SOUTHERN METHODIST UNIVERSITY, DALLAS, TEXAS.

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